

I claim:

1. A method of reducing weight when securing a plurality of tubes into a non-metallic header, said method comprising the steps of:

- 5           a) providing a predetermined plurality of tubes having a predetermined end configuration;
- b) providing a non-metallic header having a predetermined number of openings corresponding to said predetermined plurality of tubes, said
- 10           predetermined plurality of openings having a predetermined configuration substantially identical to said predetermined end configuration of said predetermined plurality of tubes, said
- predetermined plurality of openings being disposed
- 15           in said non-metallic header in a predetermined array, and
- c) securing an end of each of said predetermined plurality of tubes into a respective predetermined plurality of openings in said non-metallic header.

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2. A method, according to claim 1, wherein said method includes the additional step of providing said non-metallic header in a predetermined variety of shapes.

3. A method, according to claim 1, wherein said method includes the additional step of providing a predetermined envelope size for said non-metallic header.

5        4. A method, according to claim 3, wherein said method includes the additional step of providing said non-metallic header molded to fit into said predetermined envelope size.

10       5. A method, according to claim 4, wherein said non-metallic header provided in step (b) is made from a plastic material.

15       6. A method, according to claim 5, wherein said plastic material is selected from a group consisting of Kynal, nylon, Kevlar, polyester, and phenolic resin.

7. A method, according to claim 6, wherein said plastic material is Kynal.

20       8. A method, according to claim 1, wherein said predetermined end configuration provided in step (a) is generally oblong in shape.

9. A method, according to claim 1, wherein said predetermined plurality of tubes provided in step (a) are generally oblong in shape along substantially an entire length thereof.

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10. A method, according to claim 1, wherein step (c) further includes securing said end of each of said predetermined plurality of tubes into said respective predetermined plurality of openings in said non-metallic header by at least one of mechanical bonding and non-mechanical bonding.

11. A method, according to claim 10, wherein said mechanical bonding includes at least one of rolling and machining.

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12. A method, according to claim 11, wherein said non-mechanical bonding includes at least one of welding, and adhesion.

13. A method, according to claim 12, wherein said mechanical bonding is preferably a rolling process.

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14. A method, according to claim 1, wherein said step (c) further includes adding a secondary predetermined bonding agent.

15. A method, according to claim 14, wherein said secondary bonding agent is a chemical bond.

16. A method, according to claim 1, wherein said predetermined plurality of tubes is at least two.

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17. A method, according to claim 1, wherein step (c) further includes the additional step of forming an annular groove in each of said respective predetermined plurality of openings in said non-metallic header.

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18. A method, according to claim 17, wherein step (c) further includes seating said end of each of said predetermined plurality of tubes in said annular groove.

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19. A method, according to claim 18, wherein seating said end of each of said predetermined plurality of tubes in step (c) includes the additional step of inserting an internal sizing tool.

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